Amendments to the Claims:

Please amend claims 1, 3, 11, 13, 21, 23, and 30 and cancel claims 2, 12 and 31. This listing of claims will replace all prior versions, and listing, of claims in the application.

1. (Currently amended): [[An]] A lithographic illuminator device for an optical image processing system, wherein the image processing system comprises an optical system requiring partially coherent illumination, and where the illuminator comprises:

a synchrotron source of coherent or partially coherent extreme ultraviolet (EUV) radiation which has an intrinsic coherence that is higher than a desired coherence;

reflective optics that receives incident EUV radiation from said synchrotron source;

a single holographic diffuser, that comprises a reflection grating, having a surface that receives incident EUV radiation from said reflective optics ~~source~~ wherein the holographic diffuser is a blazed phase device;

means for translating the surface of the holographic diffuser linearly in two dimensions along a plane that is parallel to the surface of the holographic diffuser with the proviso that the surface of said holographic diffuser is not rotated, wherein the rate of the motion is fast relative to integration time of said image processing system wherein the coherent or partially coherent radiation is diffracted by the surface of the holographic diffuser to generate diffracted radiation containing diffractive orders of radiation and a zero order of radiation; [[and]]

a condenser optic that re-images the surface of the holographic diffuser to the entrance plane of said image processing system[[.]] such that a reticle which is positioned at the entrance plane is illuminated with EUV radiation emanating from a range of angles and wherein EUV radiation at a particular illumination angle is incoherent with respect to EUV radiation at all other illumination angles; and

filtering means to block at least the zero order radiation from reaching the condenser optic.

2. (Canceled):

3. (Currently Amended): The illuminator of claim [[2]] 1 wherein the filtering means also blocks all but the +1 order radiation or the -1 order radiation from reaching the condenser optic.

4. (original): The illuminator of claim 1 wherein the holographic diffuser is a binary amplitude device.

5. (original): The illuminator of claim 1 wherein the holographic diffuser is a binary phase device.

6.(Canceled)

7.(Previously presented) The illuminator of claim 1 wherein the holographic diffuser blaze is quantized to between 3 and 8 levels.

8. (original): The illuminator of claim 1 wherein the condenser optic is a single reflective element.

9. (original): The illuminator of claim 8 wherein the reflective condenser element is spherical.

10. (Canceled)

11. (Currently amended): A method of modifying the coherence of a beam of extreme ultraviolet (EUV) radiation from a synchrotron source that comprises:

(a) positioning a reflective optics that receives incident EUV and directing [[the]] a beam of radiation from the reflective optics onto a surface of a single holographic diffuser, that comprises a reflection grating, wherein the holographic diffuser is a blazed phase device;

(b) translating the surface of the holographic diffuser in two dimensions causing the surface to move only linearly in the plane of the holographic surface with the proviso that the surface is not rotated, wherein the rate of the motion is fast relative to the subsequent observation

time wherein the beam of radiation comprises coherent or partially coherent radiation that is diffracted by the surface of the holographic diffuser to generate diffracted radiation containing diffracted orders of radiation and zero order of radiation; [[and]]

(c) re-imaging the holographic diffuser surface to an observation plane, wherein the re-imaging step employs a condenser optic such that a reticle which is positioned at the observation plane is illuminated with EUV radiation emanating from a range of angles and wherein EUV radiation at a particular illumination angle is incoherent with respect to EUV radiation at all other illumination angles; [[.]] and

(d) blocking at least the zero order radiation from reaching the condenser optics.

12. (Canceled)

13. (Currently amended): The method of claim [[12]] 11 wherein the blocking step also blocks all but the +1 order radiation or the -1 order radiation from reaching the condenser optic.

14. (Canceled)

15. (original): The method of claim 11 wherein the holographic diffuser is a binary amplitude device.

16. (original): The method of claim 11 wherein the holographic diffuser is a binary phase device.

17. (Canceled)

18. (Previously presented): The method of claim 11 wherein the holographic diffuser blaze is quantized to between 3 and 8 levels.

19. (original): The method of claim 11 wherein the condenser optic is a single reflective element.

20.(original): The method of claim 19 wherein the reflective condenser element is spherical.

21. (Currently amended): [[An]] A lithographic illuminator device for an optical image processing system, wherein the image processing system comprises an optical system requiring partially coherent illumination, and wherein the illuminator comprises:

a synchrotron source of coherent or partially coherent extreme ultraviolet (EUV) radiation which has an intrinsic coherence that is higher than a desired coherence;

reflective optics that receives incident EUV radiation from said synchrotron source;

a single holographic diffuser, that comprises a reflection grating, consisting essentially of a single surface that receives incident EUV radiation from said reflective optics ~~source~~;

means for translating the surface of the holographic diffuser linearly in two dimensions along a plane that is parallel to the surface of the holographic diffuser with the proviso that the surface of said holographic diffuser is not rotated, wherein the rate of the motion is fast relative to integration time of said image processing system wherein the coherent or partially coherent radiation is diffracted by the surface of the holographic diffuser to generate diffracted radiation containing diffractive orders of radiation and a zero order of radiation; [[and]]

a condenser optic that re-images the surface of the holographic diffuser to the entrance plane of said image processing system[[.]] such that a reticle which is positioned at the entrance plane is illuminated with EUV radiation emanating from a range of angles and wherein EUV radiation at a particular illumination angle is incoherent with respect to EUV radiation at all other illumination angles; and

filtering means to block at least the zero order radiation from reaching the condenser optic.

22. (Canceled)

23. (Currently Amended): The illuminator of claim [[22]] 21 wherein the filtering means also blocks all but the +1 order radiation or the -1 order radiation from reaching the condenser optic.

24. (Previously presented): The illuminator of claim 21 wherein the holographic diffuser is a binary amplitude device.

25. (Previously presented): The illuminator of claim 21 wherein the holographic diffuser is a binary phase device.

26. (Previously presented) The illuminator of claim 21 wherein the holographic diffuser is a blazed phase device.

27. (Previously presented) The illuminator of claim 26 wherein the holographic diffuser blaze is quantized to between 3 and 8 levels.

28. (Previously presented): The illuminator of claim 21 wherein the condenser optic is a single reflective element.

29. (Previously presented): The illuminator of claim 28 wherein the reflective condenser element is spherical.

30. (Currently amended): A method of modifying the coherence of a beam of extreme ultraviolet (EUV) radiation from a synchrotron source to yield a partially coherent illumination having a desired coherence, said method comprising of:

(a) positioning a reflective optics that receives incident EUV from the synchrotron source of coherent or partially coherent radiation which has an intrinsic coherence that is higher than that of the partially coherent illumination;

[[(a)]] (b) directing [[the]] a beam of radiation from ~~a synchrotron source of coherent or partially coherent radiation which has an intrinsic coherence that is higher than that of the partially coherent illumination,~~ the reflective optics onto a surface of a single holographic

diffuser, that comprises a reflection grating, wherein the diffuser consists essentially of a single surface that receives incident radiation from said reflective optics [[source]];

[[(b)]] (c) translating the surface of the holographic diffuser in two dimensions causing the surface to move only linearly in the plane of the holographic surface with the proviso that the surface is not rotated, wherein the rate of the motion is fast relative to the subsequent observation time wherein the coherent or partially coherent radiation is diffracted by the surface of the holographic diffuser to generate diffracted radiation containing diffractive orders of radiation and a zero order of radiation; [[and]]

(d) re-imaging the holographic diffuser surface with a condenser optic to an observation plane optic such that a reticle which is positioned at the observation plane is illuminated with EUV radiation emanating from a range of angles and wherein EUV radiation at a particular illumination angle is incoherent with respect to EUV radiation at all other illumination angles; [[.]] and

(e) blocking at least the zero order radiation from reaching the condenser optic.

31. (Canceled)

32. (Previously presented): The method of claim 30 wherein the blocking step also blocks all but the +1 order radiation or the -1 order radiation from reaching the condenser optic.

33. (Previously presented): The method of claim 30 wherein the holographic diffuser is a binary amplitude device.

34. (Previously presented): The method of claim 30 wherein the holographic diffuser is a binary phase device.

35. (Previously presented): The method of claim 30 wherein the holographic diffuser is a blazed phase device.

36. (Previously presented): The method of claim 35 wherein the holographic diffuser blaze is quantized to between 3 and 8 levels.

37. (Previously presented): The method of claim 30 wherein the condenser optic is a single reflective element.

38. (Previously presented): The method of claim 37 wherein the reflective condenser element is spherical.